

A NEW SPIDER SPECIES OF THE GENUS *PARASTEATODA* ARCHER (ARANEAE, THERIDIIDAE) IN WUYI MOUNTAINS, FUJIAN, CHINA

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Abstract A new species of the spider genus *Parasteatoda* Archer, 1946 is described: *Parasteatoda wangi* sp. nov. (male, female) from Mt. Wuyi, Fujian Province.

Key words Spider, taxonomy, *Parasteatoda*, new species, China.

1 Introduction

Members of the spider family Theridiidae are small to medium-size, and ranks fifth among the Araneae in terms of the number currently described, containing 121 genera and 2 351 species distributed worldwide (Platnick, 2013). To date, 303 species among 51 genera have been recorded in China (Zhang & Zhang, 2011; Hu & Zhang, 2012; Liu & Peng, 2012; Zhang & Zhang, 2012; Zhang & Zhang, 2012; Li & Wang, 2013).

The genus *Parasteatoda* was established by Archer in 1946 as a subgenus of *Theridion* with the type species *Theridion tepidariorum* C. L. Koch, 1841; later he elevated this subgenus to the generic position (Archer, 1950). The genus was synonymized with *Achaearanea* Strand, 1929 by Levi (1955), and had not been used until Saaristo (2006) removed *Parasteatoda* from the synonymy, and he also redescribed two species, *P. mundula* (L. Koch, 1872) and *P. tepidariorum* (C. L. Koch, 1841). In 2008, Yoshida revised the genus *Achaearanea* and transferred 37 species and a subspecies to the genus *Parasteatoda*. Up to now, 46 *Parasteatoda* species have been reported worldwide, including 21 species from China (Platnick, 2013).

In current paper, a new theridiid species from Mt. Wuyi, Fujian Province of China, *Parasteatoda wangi* sp. nov. is recognized and described.

2 Material and Methods

All measurements given in the text are in millimeters. All specimens are preserved in 75 % alcohol and were examined, drawn, and measured under a Leica M165C stereomicroscope equipped with an Abbe drawing device. Photographs were taken using the Leica M205A stereomicroscope equipped with a DFC450 CCD. Carapace length was measured

from the anterior margin to the posterior margin of the carapace medially. Eye sizes were measured as the maximum diameter of the lens in dorsal or frontal view. The measurements of legs are shown as total length (femur, patella, tibia, metatarsus, tarsus). The epigynum was cleared in a warm solution of potassium hydroxide (KOH), transferred to 75 % ethanol for drawing. All specimens studied are deposited in the Museum of Hebei University (MHBUS), Baoding, China.

The following abbreviations are used: ALE, anterior lateral eyes; ALE-ALE, distance between ALEs; AME, anterior median eyes; AME-ALE, distance between AME and ALE; AME-AME, distance between AMEs; C, conductor; CD, copulatory ducts; E, embolus; FD, fertilization duct; MOA, median ocular area; PLE, posterior lateral eyes; PLE-PLE, distance between PLEs; PME, posterior median eyes; PME-PLE, distance between PME and PLE; PME-PME, distance between PMEs; S, spermatheca; ST, subtegulum; T, tegulum.

3 Taxonomy

Parasteatoda Archer, 1946

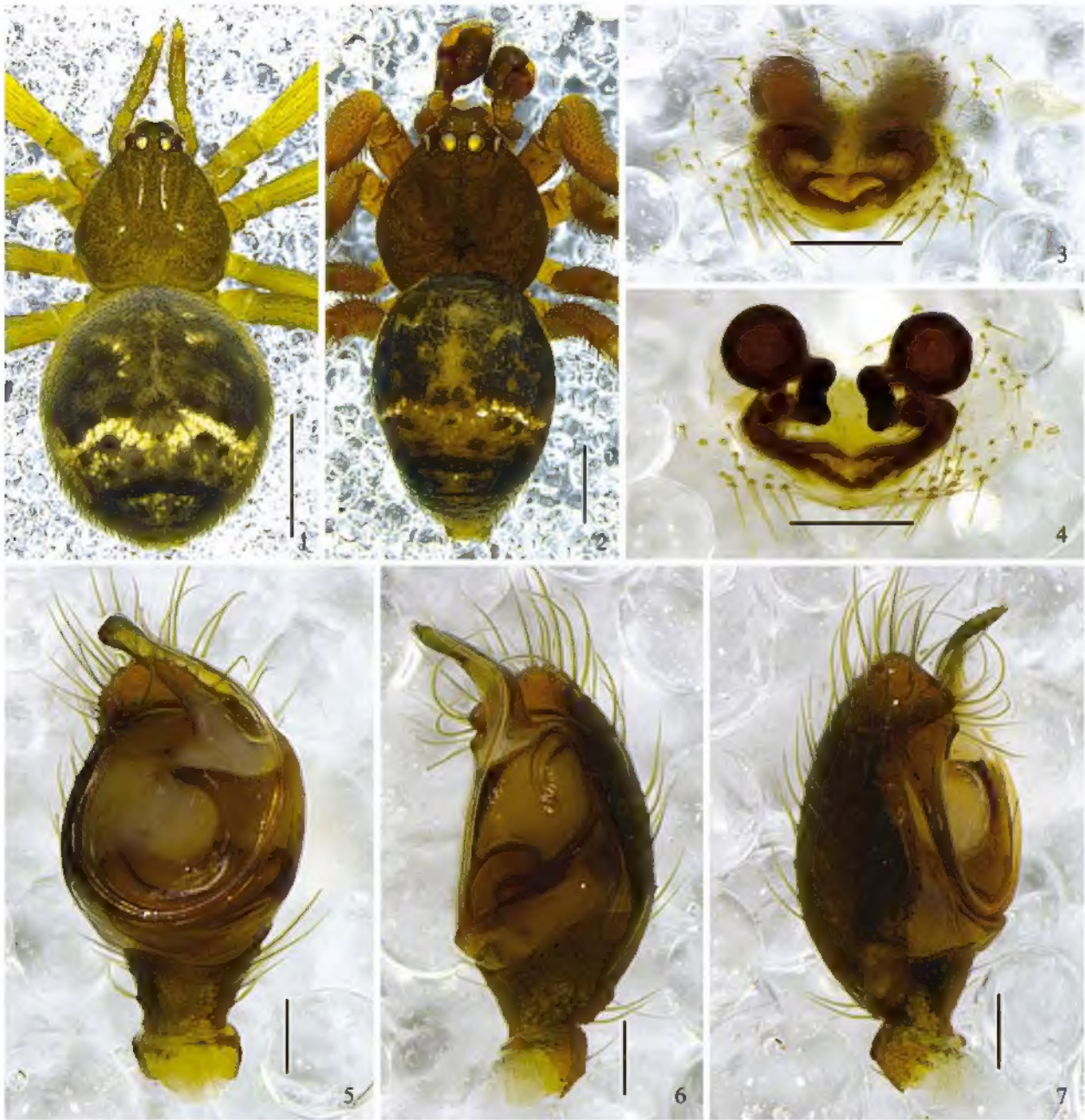
Parasteatoda wangi sp. nov. (Figs 1–11)

Holotype ♀, China, Fujian Province, Mt. Wuyi, Taoyuan Valley (27°43'N, 117°42'E), 9 Aug. 2010. Paratype: 12 ♂♂, 16 ♀♀, same data as holotype; 1 ♂, 1 ♀, Taoyuan Valley (27°43'N, 117°42'E), 13 Aug. 2010; 4 ♂♂, 4 ♀♀, Tongmu Gate (27°49'N, 117°42'E), 8 Aug. 2010; 3 ♀♀, Nankeng (27°56'N, 118°06'E), 6 Aug. 2010; 1 ♂, Huangxizhou (27°42'N, 117°45'E), 6 Aug. 2010; 2 ♂♂, 3 ♀♀, Taoyuan Valley (27°43'N, 117°42'E), 25 May 2004; 1 ♀, Moshikeng (27°53'N, 117°57'E), 20 May 2004. All type collected

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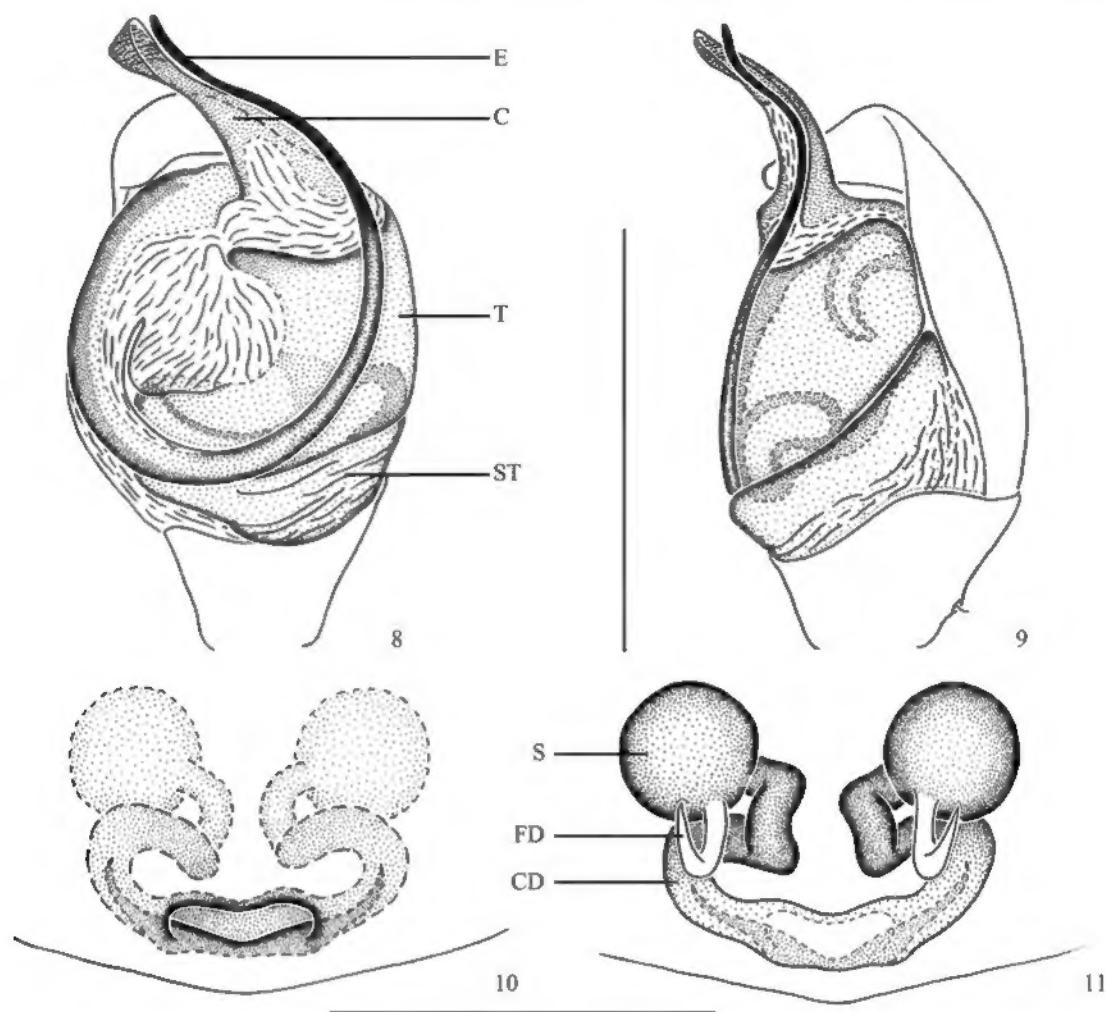
Figs 1–7. *Parasteatoda wangi* sp. nov. 1. Female habitus, dorsal view. 2. Male habitus, dorsal view. 3. Epigyne, ventral view. 4. Vulva. 5. Male left palp, ventral view. 6. Ditto, retrolateral view. 7. Ditto, prolateral view. Scale bars: 1–2 = 0.5 mm, 3–4 = 0.2 mm, 5–7 = 0.1 mm.

by ZHANG Feng.

Etymology. The specific name is a patronym in honor of Mr. WANG Jia-She for his assistance in our exploration of Mt. Wuyi; the species name is a noun in apposition.

Diagnosis. This new species belongs to the genus *Parasteatoda* due to it has the following characteristics, epigyne without posterior lobe, atrium distinct; cymbium of male palp not extend beyond the alveolus and buld with large subtegulum. This new species resembles *Parasteatoda lanyuensis* (Yoshida, Tso & Severinghaus, 2000) from Taiwan in the structure of genital organ; embolus thin and long, forming a circle

in palp; and copulatory ducts almost spiral-shaped connecting the spermathecae in epigyne. Females can be distinguished from the latter by: 1) the width of epigynal atrium is about twice as the length (Figs 3, 10) while nearly equal in *P. lanyuensis* (Yoshida *et al.*, 2000: 131, Fig. 30); 2) epigynal atrium having a distinct posterior margin, and anterior margin recurved centrally (Figs 3, 10); while anterior margin not recurved centrally in *P. lanyuensis* (Yoshida *et al.*, 2000: 131, Fig. 30); 3) spermathecae far apart and about equal to one diameter of spermatheca (Figs 4, 11), while the distance of spermathecae is shorter than the radius of spermatheca in *P. lanyuensis* (Yoshida



Figs 8 – 11. *Parasteatoda wangi* sp. nov. 8. Male left palp, ventral view. 9. Ditto, retrolateral view. 10. Epigyne, ventral view. 11. Vulva. Scale bars = 0.4 mm.

et al., 2000; 131, Fig. 31). Males can be distinguished from the latter by: 1) the diameter of the embolar circle is about four-fifths of the bulb's length (Figs 5, 8), while about two-thirds in *P. lanyuensis* (Yoshida *et al.*, 2000; 131, Fig. 28); 2) basal part of conductor thick (Figs 5, 8), while thinner in the latter (Yoshida *et al.*, 2000; 131, Fig. 28); and the tip of conductor blunt and with a transparent hood (Figs 5 – 9), while with pointed and bent conductor tip in the ventral view in *P. lanyuensis* (Yoshida *et al.*, 2000; 131, Figs 28 – 29); 3) smaller subtegulum (Figs 5 – 9) than that of *P. lanyuensis* (Yoshida *et al.*, 2000; 131, Figs 28 – 29).

Description. Females. Total length 3.72 – 4.44; the holotype body length 4.44; prosoma 1.43 long, 1.12 wide; abdomen 3.32 long, 3.01 wide (Fig. 1). Carapace dark yellowish-brown, longer than wide, radial furrow and fovea indistinct. Anterior eye row recurved, posterior eye row almost straight; lateral eyes touching each other. Diameters of eyes: AME 0.13, ALE 0.10, PME 0.13, PLE 0.13. Intervals of eyes: AME-AME 0.08, AME-ALE 0.05, ALE-ALE

0.38, PME-PME 0.10, PME-PL 0.08, PLE-PL 0.43, ALE and PLE closed to each other. MOA 0.33 length, front width 0.33, back width 0.30. Clypeus height 0.28, brown. Chelicerae yellow, only 2 promarginal teeth. Endites and labium yellow with distal margin white. Sternum brown, furnished with sparse black setae, lateral margin black and anterior margin yellow. Legs grayish yellow. Measurements of legs: leg I 7.95 (2.50, 0.71, 1.63, 2.24, 0.87), II 4.92 (1.63, 0.28, 0.97, 1.38, 0.66), III 3.94 (1.12, 0.46, 0.66, 0.97, 0.28), IV 6.11 (2.04, 0.61, 1.12, 1.58, 0.66). Leg formula: 1423. Opisthosoma oval, longer than wide, and armed with brown setae. Dorsum gray with irregular black patches, anterior part with a few scattered white spots, middle part with an M-shaped white transverse patch and posterior part with some black transverse patches. Venter dark grey, opercula of booklung light gray with some white spots on both sides. Spinnerets grayish yellow.

Epigyne as in Figs 3 – 4, 10 – 11. Epigynal atrium flat oval and depressed, with anterior margin

recurved centrally, posterior margin distinct with shallow grooves leading to the copulatory openings, and the atrium's width is about twice as the length; copulatory ducts thick and long, almost spiral-shaped connecting the spermathecae; spermatheca spherical and the distance of spermathecae is about one spermatheca's diameter; fertilization duct long with hooked tip.

Males. Total length 2.45 – 2.70; one specimen measured; body length 2.70; prosoma 1.22 long, 1.02 wide; abdomen 1.53 long, 1.35 wide (Fig. 2). Carapace with black radial furrow and black pentagonal fovea. Clypeus height 0.23. Diameters of eyes; AME 0.13, ALE 0.10, PME 0.13, PLE 0.13. Interdistances of eyes; AME-AME 0.13, AME-ALE 0.03, ALE-ALE 0.35, PME-PME 0.08, PME-PL 0.08, PLE-PL 0.43, ALE and PLE closed to each other. MOA 0.30 length, front width 0.33, back width 0.28. Measurements of legs; leg I 6.84 (2.14, 0.51, 1.48, 1.94, 0.77), II 3.98 (1.38, 0.36, 0.66, 1.07, 0.51), III 2.66 (0.51, 0.46, 0.41, 0.77, 0.51), IV 4.34 (1.48, 0.41, 0.92, 1.02, 0.51). Leg formula: 1423. The coloration of males deeper than the females', other characters as in female.

Palp as in Figs 5 – 9. Embolus thin and long, forming a circle, connected with a membranous base to the tegulum; conductor translucent, thin and long, basal part thick and membranous, the tip blunt with a transparent hood; subtegulum obviously smaller than tegulum.

Distribution. Known only from the type locality.

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REFERENCES

- Archer, A. F. 1946. The Theridiidae or comb-footed spiders of Alabama. *Museum Paper [of the] Alabama Museum of Natural History*, 22: 1 – 67.
- Archer, A. F. 1950. A study of theridiid or mimetid spiders with descriptions of new genera and species. *Museum Paper [of the] Alabama Museum of Natural History*, 30: 1 – 40.
- Hu, D-S and Zhang, F 2012. A new species of the genus *Steatoda* (Araneae, Theridiidae) from China. *Sichuan Journal of Zoology*, 31: 1 – 3.
- Levi, H. W. 1955. The spider genera *Coessa* and *Achaearanea* in America North of Mexico (Araneae, Theridiidae). *American Museum Novitates*, 1718: 1 – 33.
- Li, S-Q and Wang, X-P 2013. Endemic spiders in China, Version 1.0. Available from <http://www.amaurobiidae.com/araneae/index.php>. (accessed 24 Jan. 2013).
- Liu, F and Peng, X-J 2012. Four new species of spiders of the genus *Theridion* (Araneae: Theridiidae) from China. *Oriental Insects*, 46: 85 – 95.
- Platnick, N. I. 2013. The world spider catalog, Version 13.0, American Museum of Natural History. Available from <http://research.amnh.org/iz/spiders/catalog/COUNTS.html> (accessed 24 Jan. 2013).
- Saaristo, M. I. 2006. Theridiid or comb spider of the granitic Seychelles Islands (Araneae, Theridiidae). *Phelsuma*, 14: 49 – 89.
- Yoshida, H. 2008. A revision of the genus *Achaearanea* (Araneae: Theridiidae). *Acta Arachnologica, Tokyo*, 57: 37 – 40.
- Yoshida, H., Tso, I. M. and Severinghaus, L. L. 2000. The spider family Theridiidae (Arachnida: Araneae) from Orchid Island, Taiwan: descriptions of six new and one newly recorded species. *Zoological Studies*, 39: 123 – 132.
- Zhang, B-S and Zhang, F 2012. Two new spider species of the genus *Chrysso* O. P. - Cambridge, 1882 (Araneae, Theridiidae) in Hainan Island, China. *ZooKey*, 190: 21 – 31.
- Zhang, F and Zhang, B-S 2011. Five new species of the spider genus *Dipoena* Thorell, 1869 from Hainan Island, China (Araneae: Theridiidae). *Acta Arachnologica*, 60: 93 – 101.
- Zhang, F and Zhang, B-S 2012. Spiders of the genus *Phycosoma* O. P. - Cambridge, 1879 (Araneae: Theridiidae) from Hainan Island, China. *Zootaxa*, 3339: 30 – 43.

中国福建武夷山拟肥腹蛛属一新种记述 (蜘蛛目, 球蛛科)

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摘要 记述采自我国福建武夷山球蛛科拟肥腹蛛属 1 新种, 汪氏拟肥腹蛛 *Parasteatoda wangi* sp. nov.。模式标本保存在河北大学博物馆。

汪氏拟肥腹, 新种 *Parasteatoda wangi* sp. nov. (图 1~11)

正模♀, 福建武夷山桃源峪, 2010 年 8 月 9 日。副模: 12♂♂, 16♀♀, 桃源峪, 2010 年 8 月 9 日; 1♂, 1♀, 桃源峪, 2010 年 8 月 13 日; 4♂♂, 4♀♀, 桐木关, 2010 年 8 月 8 日; 3♀♀, 南坑, 2010 年 8 月 6 日; 1♂, 黄溪洲, 2010 年 8 月 6 日; 2♂♂, 3♀♀, 桃源峪, 2004 年 5 月 25 号; 1♀, 磨石坑, 2004 年 5 月 20 日。全部模式标本均由张锋采集于福建武夷山。

新种在生殖器官上与台湾的兰屿拟肥腹蛛 *Parasteatoda lanyuensis* (Yoshida, Tso & Severinghaus, 2000) 十分相似, 如两者触肢器的插入器都又细又长, 并围成 1 个环; 外雌器的

连接管都在靠近纳精囊的部分呈螺旋形。雌性可以由以下区别: 1) 前庭宽大约是长的 2 倍, 后者将近相等; 2) 新种雌性外雌器前庭具有明显的后缘且前缘中央后凹, 后者无明显后缘且前缘中央不后凹; 3) 新种纳精囊之间的距离大约为 1 个纳精囊直径, 后者距离小于 1 个半径。雄性可以由以下区别: 1) 新种由插入器围成的环的直径长度大约占生殖球长度的 4/5, 后者大约占 2/3; 2) 新种引导器基部宽, 且端部钝且具有 1 透明的兜, 后者基部瘦, 端部尖且弯曲; 3) 新种亚盾板比后者小。

词源: 新种种名源自福建武夷山国家级自然保护区汪家社先生的姓氏, 以感谢他对笔者野外工作的帮助; 词性为名词性同位语。

分布: 中国 (福建)。

关键词 蜘蛛, 分类学, 拟肥腹蛛属, 新种, 中国。

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